

Wolff Law Offices, PLLC
Response To Election/Restriction and Amendment

Appl. Ser. No. 10/657,188

REMARKS

Applicant hereby submits this Response and Amendment to respond to the Election/Restriction notice dated January 17, 2007. Claims 1-24 have been examined. Claims 19 and 20 have again been amended to more clearly claim the invention of the subject application, and particularly to direct these claims into either class and subclass 60/285 or 123/673 by removing the term "valve" from these claims. Applicant once again notes for the record that these claim amendments are made to facilitate the Examiner's understanding that all claims are related to a single invention and that none of the claim amendments are made for reasons of patentability.

The Examiner should note that many of the engine control concepts described in various portions of the present invention specification include a system of closely integrated control features so as to allow a combination of catalyst heating and diagnosis to be performed during a wide range of engine operating conditions. This may be done by integrating the concept of "cycling of individual cylinders' exhaust gases' air-fuel ratio" into engine fuel control, during both steady state and transient load conditions. More precise engine fuel control resulting from this approach may allow engine operation occurring over a greater portion of time to be closer to a stoichiometric control set point for greater catalyst efficiency. This may in turn provide a greater frequency for opportunities with more optimum catalyst diagnosis conditions needed for improving diagnosis accuracy that may also directly resulted from more rapidly stabilizing these air-fuel deviations during normal engine operation.

The January 17, 2007, Office Action restricted the claims under 35 USC 121 to either: (1) Group I having claims 1-13, 16-18 and 21-24, drawn to an engine air-fuel ratio control system

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and method with exhaust gas sensor located upstream of a catalytic converter and controlled each cylinder individually, classified in class 123, subclass 673; or into (2) Group II having claims 14, 15, 19-20 drawn to poppet valve operating mechanism and method with means for varying timing, classified in class 123, subclass 90.15. This restriction is respectfully traversed and reconsideration is respectfully requested based on the aforementioned amendments and the following remarks.

Applicant thanks Examiner Nguyen for the telephone discussion with the undersigned on February 15, 2007 regarding the Restriction/Election requirement found in the Office Action dated January 17, 2007. As noted in the telephone conversation, Applicant was surprised to find another restriction and that some of the claims, now claims 14, 15, 19, and 20, were classified in class 123, subclass 90.15 and the classification of the remainder of the claims, claims 1-11, 13, 16, and 21-24 into class 123, subclass 673. The undersigned understood Supervisory Examiner Denion during the telephone discussion with the undersigned on October 10, 2006 as indicating that if the claims were each amended to include a catalyst, they would be classified in class 60, subclass 285. In the Response and Amendment filed on October 16, 2006, Applicant amended the claims so that they all included a catalyst. Therefore, Applicant expected all the claims to be classified in class 60, subclass 285.

During the February 15, 2007 telephonic conversation with Examiner Nguyen, the Examiner stated that the decision to classify the claims into class 123 subclass 673, rather than class 60 subclass 285, was related to whether the exhaust gas sensor was located upstream of a catalytic converter. However, as pointed out by the undersigned, there is no limitation in the claims that the exhaust gas sensor is located upstream of the catalytic converter. Further, the

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present patent application disclosure shows embodiments in which the exhaust sensor may be before and/or after the catalytic converter. (See, for example, the present application specification at paragraphs 94 and 146, along with Figures 1 and 7.)

Further, during the February 15, 2007 telephonic conversation with Examiner Nguyen, the undersigned pointed out that claims 14 and 15 were clearly misclassified because they were not limited to an invention including "valves" much less "poppet valves" as indicated for class 123, subclass 90.15. In fact, claims 14 and 15 did not even mention the term "valve." Perhaps the term "value" mentioned in claims 14 and 15 may have been misread to mean "valve" instead. Therefore, Applicant strenuously requests that claims 14 and 15 be classified in the same class and subclass as claims 1-13, 16-18 and 21-24.

Still further, during the February 15, 2007 telephonic conversation with Examiner Nguyen, the undersigned pointed out that claims 19 and 20 were not limited to an invention including "poppet valves" as indicated for class 123, subclass 90.15. There is nothing in the present specification or the previously submitted claims that limits the invention to a system or method with "poppet valves." Poppet valves are a specific type of valve. In any case, claims 19 and 20 have been amended herein to no longer mention the term "valve" and in ways so that they may more appropriately be classified into a more broad range of differing classifications that pertain to the claimed invention. Further, like all the other pending claims, claims 19 and 20 include a catalyst and language directed to individual engine cylinders, without any indication of whether an exhaust gas sensor(s) is located upstream and/or downstream of a catalytic converter.

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Applicant respectfully requests reconsideration and requests that all the claims be classified in class 60, subclass 285. Although, Applicant is willing to accept all of the claims being classified in class 123, subclass 673.

As a result of the last two responses, Applicant has amended the claims so that each group now includes a catalyst, are not limited to systems or methods that have exhaust sensor(s) before and/or after a catalytic converter (in some embodiments, exhaust sensors may be in both locations), and do not include or require "valves." Thus, Applicant respectfully submits that all the claims in the application, claims 1-24, should be examined together, and respectfully request that they be examined together.

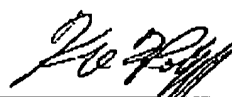
As required by the rules, Applicant hereby provisionally elects one of the groups, Group I having claims 1-13, 16-18, and 21-24, for Examination. However, Applicant strenuously submits that as a result of the revisions to Claims 19 and 20, and arguments related to claims 14 and 15, presented in this Response, all claims are directed to the same invention, are found in the same search group (class and subclass), and should be examined together. Regardless of the ultimate classification of these claims, as noted by Examiner Nguyen during the telephone conversation on February 15, other classes and subclasses will need to be search and considered. Therefore, there is no additional burden on the Examiner for examining claims 1-24 together.

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If for any reason the Examiner believes that the present application is not now in condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below or on my mobile telephone at 703-731-7220.

Respectfully submitted,



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